

#### ABSTRACT OF THE DISCLOSURE

~~— Provided are a method for removing sulfur compounds contained in a hydrocarbon-containing gas in which in feeding a hydrocarbon-containing gas to a desulfurizing bed to remove sulfur compounds contained in the above gas, used is the desulfurizing bed constituted from a desulfurizing agent A comprising zeolite and a desulfurizing agent B comprising at least one selected from a metal element, a metal oxide and a metal component-carried oxide, and a production process of hydrogen for a fuel cell in which a hydrocarbon-containing gas subjected to desulfurization treatment by the above method is brought into contact with a partial oxidation reforming catalyst, an autothermal reforming catalyst or a steam reforming catalyst. According to the method of the present invention, combined use of two kinds of the desulfurizing agents having different desulfurizing performances and use of a raw material gas having a low concentration of carbonyl sulfide make it possible to efficiently remove all of sulfur compounds contained in a hydrocarbon-containing gas to a low concentration even at a room temperature. Further, hydrogen for a fuel cell can economically advantageously be produced by subjecting the desulfurization-treated hydrocarbon-containing gas obtained by the method described above to reforming treatment.~~

A method for removing sulfur compounds from a hydrocarbon-containing gas wherein the gas is fed to a desulfurizing bed comprising a desulfurizing agent A comprising zeolite and a desulfurizing agent B comprising at least one selected from the group consisting of a metal element, a metal oxide and a metal component-carried oxide, is provided.  
Hydrogen for a fuel cell is produced by a method, wherein the gas obtained by the described desulfurization method is contacted with a partial oxidation reforming catalyst, an autothermal reforming catalyst or a steam reforming catalyst.